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Claims

1. Steering device (10, 50, 60), in particular for vehicles, comprising a rotatable steering wheel (14) and a base part (18, 52) which does not rotate along with the steering wheel (14), wherein means are provided for transmitting data between the steering wheel (14) and the base part (18, 52), the means being designed such that they transmit data between the steering wheel (14) and the base part (18, 52) in a contact-free manner using light signals, wherein the means comprise at least one light transmitting unit (20) and at least one light receiving unit (22, 24) for transmitting the light signals, characterized in that light switches and/or light buttons (35, 40) are disposed on the steering wheel (14) and can be activated by the individual operating the steering wheel (14) to switch or influence the light signals, wherein at least one light transmitting unit (20) and at least one light receiving unit (22, 24) are disposed on the base part side, the light signals being optically transmitted from the light transmitting unit (20) to the steering wheel (14) and from the steering wheel (14) to the light receiving unit (22, 24), in a contact-free manner.

2. Device (10, 50, 60) according to claim 1, characterized in that the means comprise light guides (26, 28, 30, 32, 34, 36) and/or light fingers (62, 64, 66).

3. Device according to claims 1 or 2, characterized in that the light signals of the light transmitting unit (20) are fanned-out (42) in the steering wheel (14) and the fanned-out light signals pass the light switches and/or light buttons (38, 40).

4. Device according to any one of the preceding claims, characterized in that the light signals are encoded.

5. Device according to claim 4, characterized in that the light signals are spectrally separated for encoding.

6. Device according to claim 4 or 5, characterized in that the light signals are appropriately pulsed for encoding.

7. Device according to any one of the preceding claims, characterized in that the light switches and/or light buttons (38, 40) are optically connected to different light receiving units (22, 24).

8. Device according to any one of the preceding claims, characterized in that the light transmitting unit (20) transmits light signals in a contact-free manner into a light guide ring (26) disposed around the axis of rotation of the steering wheel on the steering wheel side, the light guide ring (26) being optically connected to the light switches and/or light buttons (38, 40).

9. Device according to claim 8, characterized in that at least one and preferably several light guide rings (28, 30) are provided about the axis of rotation of the steering wheel on the steering wheel side, into which the signals from the light switches and/or light buttons (38, 40) are guided.

10. Device according to claim 8 or 9, characterized in that the light guide ring(s) (26, 28, 30) is/are scanned in a contact-free manner using light receiving units on the base part side.

11. Device according to any one of the claims 8 through 10, characterized in that feeding or scanning is carried out directly or indirectly, in particular via light fingers.

12. Device according to any one of the claims 8 through 11, characterized in that the light guide rings (26, 28, 30) are disposed next to each other along the axis of rotation (12).

13. Device according to any one of the claims 8 through 12, characterized in that the outer radii of the light guide rings (26, 28, 30) are at least largely identical.

14. Device according to any one of the claims 8 through 11, characterized in that the light guide rings (26, 28, 30) are disposed concentrically about the axis of rotation (12), in one plane.

15. Device according to any one of the claims 8 through 14, characterized in that the light transmitting unit (20) and the light receiving unit (22, 24) are disposed radially or axially next to the light guide rings (26, 28, 30).

16. Device according to any one of the claims 8 through 15, characterized in that the light guide rings (26, 28, 30) are designed as part of a code disc of a steering angle measuring means, which is rotationally coupled with the steering wheel (14).

17. Device according to any one of the claims 1 through 7, characterized in that the light transmitting unit (20) transmits light signals into a light guide ring (26) disposed about the axis of rotation of the steering wheel on the base part side, which is scanned in a contact-

free manner by at least one light finger (62) optically connected to the light switches and/or light buttons (38, 40).

18. Device according to claim 17, characterized in that at least one and preferably several light fingers (64, 66) are disposed on the steering wheel side to transmit the light signals in a contact-free manner from the light switches and/or light buttons (38, 40) to light guide rings (28, 30) disposed about the axis of rotation (12) of the steering wheel (14) on the base part side.

19. Device according to claim 17 or 18, characterized in that the light guide rings (26, 28, 30) are disposed in one plane in concentric circles about the steering axis (12).

20. Device according to claim 17, 18 or 19, characterized in that the light guide rings (26, 28, 30) are disposed on the base part (18, 52) or are integrated in the base part (18, 52).

21. Device according to any one of the preceding claims, characterized in that the at least one light transmitting unit (20) is designed as LED or as a photo transistor.

22. Device according to claim 21, characterized in that the base part (18) is a printed circuit board (52) on which the LEDs (20) and/or photo transistors (22, 24) are disposed either directly or indirectly.